The Changing Nature of Unmarried and Unplanned Births: 1995-2007

by

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Introduction

Changing family structure is a major policy issue in the United States with far-reaching implications for both children and their parents. Rising levels of unmarried and unplanned births are indicative of a policy issue that merits attention on a national level, particularly if the mothers involved are unable to support themselves financially. Families in which there are unmarried and unplanned births tend to be more disadvantaged and children less well off. Thus, it is important to understand these changes in family structure so that policymakers can craft family policies that work efficiently to solve the problems facing new types of families.

Since 1995, both married and unmarried mothers have become older on average (Table 1). However, this singular statistic does not fully explain the context of these nonmarital births. In the tradition of *Murphy Brown*, recent controversy surrounding Harvard graduate and Oscar-winning actress Natalie Portman's pregnancy has created a media firestorm. Republican presidential hopeful (and minister) Mike Huckabee commented on this high-profile out-of-wedlock pregnancy by saying, "One of the things that is troubling is that people see a Natalie Portman or some other Hollywood starlet who boasts of, 'Hey look, we're having children, we're not married, but we're having these children, and they're doing just fine. But there aren't really a lot of single moms out there who are making millions of dollars every year for being in a movie" (DeMillo, 2011). The pushback that Huckabee received for these comments, despite their accuracy in the data, is indicative that out-of-wedlock childbirth may no longer be seen as a social problem. Indeed, some columnists are considering whether being a single mother is now "glamorous," citing examples such as actresses Jamie-Lynn Spears and Keisha Castle

Hughes (Turner, 2009). Coupled with shallow data on the rising age of unmarried mothers, these high-profile examples have developed an inaccurate consensus about the social situation of unmarried mothers. In this paper I critically assess demographic changes among nonmarital and unplanned births between 1995 and 2007. Rather than only looking at a mother's age, I use detailed data on these births and the mothers' demographic characteristics that allow me to more effectively examine the contexts into which these children are born. It is important to note that while I will use births as the units of analysis, I will be examining them in the context of the mother's life. Data such as whether the mother is married, cohabiting, or single, whether her pregnancy was planned, and whether the mother has a high school or college degree will be assessed. The reasoning is that as we learn more about the backgrounds, socioeconomic statuses, and life courses of these unmarried mothers, we can begin to see whether their children are born into family contexts that look similar to those experienced by children born into married families.

I will begin by reviewing the existing literature relating to nonmarital families and out-of-wedlock childbirth. This review will be broken down into four distinct sections. First, I will examine studies that describe differences between families in terms of education and income levels. The second section deals with studies that attempt to explain the diverging trends over time in cohabitation and nonmarital births by socioeconomic status. Third, I devote a section to papers on the planning status of pregnancies for married versus unmarried mothers. Finally, I look at studies that examine the rising age of unmarried mothers.

Following the literature review, I present two research questions and their related hypotheses. My overarching research question is: What changes in demographic characteristics do we observe among unmarried mothers and their children in 1995, 2002, and 2007? The sub-topics that I explore in order to answer this question are the following:

1) Comparing children born to married and unmarried mothers, have the socioeconomic characteristics (using measures of education) of their mothers diverged or narrowed over time?

2) Has the link between union status and planning status changed, and can this be accounted for by changes in mother's age or other characteristics?

I utilize the National Survey of Family Growth (NSFG) to examine these questions. I use descriptive statistics and multivariable logit models to build a descriptive analysis that creates a basis for future causal research. Eventually, my research can form the groundwork for further explorations into the question of whether children born out of wedlock are truly better off than they were in prior years. Then, policymakers can begin to carefully create policy solutions that work within and around the new family structures discussed above.

Literature Review

Descriptions of how families differ by education and income levels

In 1960, only 5.3% of births were to unmarried women compared to 36.8% in 2005 (Martin, 2006). Clearly, the structure of families in the United States is not nearly as uniform as it once was, but a review of the literature shows that these different family structures actually follow patterns that correlate highly with socioeconomic status. In short, individuals of higher socioeconomic statuses (typically measured by education levels) are more likely to marry while those of lower socioeconomic statuses are more often in nonmarital cohabiting unions that may or may not include out-of-wedlock children (Table 1). Understanding how these trends come about and how they are reinforced is important as we examine the demographic characteristics of unmarried mothers.

Looking broadly at trends in inequality, Western et al. (2008) is concerned with the fact that the variance in income among all families with children increased by two-thirds between 1975 and 2005. They examine various explanations for this increased gap, dismissing explanations based on a rise in educational variation and burgeoning single parenthood among those in lower classes. Their conclusions point to the prevalence of intergenerational inequality that shows up within the data. This is linked to diverging family structures, indicating that children born into economically and socially unstable families often grow up to form families that look much the same. Additionally, McLanahan and Percheski (2008) examine large-scale demographic changes in family structure over the past half- century. Their results are distinct from Western et al.'s, as

they find a correlation between the large uptick in single-parent families and the increase in income inequality that has occurred over the same time period.

Another study by McLanahan (2004) shows that indicators of children's resources, including mother's age, mother's employment and income, and father's involvement vary greatly by the mother's education level and have been diverging over time. More simply, it has become evident that more educated mothers also tend to be older, have higher incomes, and be in stable relationships with involved fathers. All three of these indicators point to positive outcomes for children because they create contexts with resources necessary to promote healthy child development and with individuals willing to provide necessary care. Similarly, Goldstein and Kenney (2001) show that marriage is more prevalent among highly educated women. They note a shift in this trend, as it was formerly the case that educated women would forego marriage to embark on professional careers, and point out that this shift makes marriage (and the stability it brings) a new driver of inequality.

Some literature examines the stability of different family forms, often focusing on the relative stability of a cohabiting union. One lens through which to examine this is by using rates of multipartner fertility, or the prevalence with which a mother or father also has children with a different individual. Furstenberg and Carlson (2006) use Fragile Families data to describe the nature of multipartner fertility in the United States today. They find positive correlations between father's incarceration and multipartner fertility, as well as between mother's experiences of teen pregnancy and multipartner fertility. They also find significantly higher rates of multipartner fertility among African Americans in comparison to those of other racial/ethnic groups. Wu and Musick's (2008)

work complements this study and, using 1995 data from the National Survey of Family Growth, shows that married families with children are much more stable than cohabiting families, but that once marriage occurs, the order of cohabitation, childbirth, and marriage is not associated with union stability. Indeed, some of the instability associated with cohabiting couples versus married couples can be accounted for by women's observed socioeconomic characteristics.

Using longitudinal studies, Manlove, Ryan, Wildsmith, and Franzetta explore nonmarital births in the U.S. (2010), finding that the proportion of nonmarital births occurring within cohabiting unions rose a great deal during the 1990s. By 2001, more than half of nonmarital births occurred within cohabiting unions, representing a notable change from prior years. The study finds that many births to white and Hispanic mothers that would have in the past occurred within marital are now within cohabiting unions instead. Conversely, more births to black mothers that had in the past been to single mothers now occur to mothers within cohabiting relationships. Mothers' education was again seen to be associated with relationship status at birth and the authors find that 70% of births to women in cohabiting unions were unintended.

Cherlin and Wilcox, in a recent Wall Street Journal article (2010), note first that many children are now being born to cohabiting couples rather than to married parents. They argue that cohabitation has negative consequences for these children, as "cohabiting relationships don't go the distance." Thus, there is an intra-generational feedback effect (different than the intergenerational feedback described above by Western et al. [2008]): the children born into poverty are often born to unmarried parents who tend to partner and repartner quickly. Another paper by Cherlin (2004) explores the changing nature of

marriage in the United States over recent decades. Using growing trends such as the prevalence of unmarried, cohabiting relationships and same-sex marriage, he argues that marriage is becoming deinstitutionalized. Out-of-wedlock parenting is one part of this sweeping social transition.

Explanations for diverging patterns in out-of-wedlock childbirths and cohabitation

We can now move into some studies that attempt to explain the divergence in family structure and means. These studies are not causal in nature, as it is often very difficult to determine causality in a field with so many complicated and overlapping social problems, but they offer excellent insights into the issues surrounding unmarried mothers and their families. Most of these studies follow both cohabitation patterns and the uneven rise in out-of-wedlock childbirth, two social trends that go hand in hand.

Smock et al. (2005) examine the factors that would prevent low-income cohabiting couples from marrying. They determine that, through numerous pathways including a desire to have achieved financial goals and preferences for a "real" wedding, economic stability influences the decision to marry. Those stuck in poverty are not ready for marriage even though it may be just what they need to achieve the very stability that they dream of. Sweeney (2002) examines these same issues through the lens of women's increasing labor market opportunities. She finds, after examining two cohorts of women, that women's earnings make them more marriageable. This fits with Smock's findings that economic foundations are central to the decision to move from a cohabiting relationship to a married one. So, according to recent literature, the poor do not marry like the rich do precisely because they are poor.

The seminal work in this area of research was carried out by Edin and Kefalas, who performed ethnographic research on a small sample of single mothers in poor areas of inner-city Philadelphia, resulting in their book *Promises I Can Keep* (2007). Their qualitative research provides possible explanations for women's decisions to "put children before marriage" even though they live in environments that make it extremely difficult to raise a child as a single mother. Relationship dynamics play a role, as there are pressures from the man in the relationship for the woman to become pregnant. In some cases, asking her to bear his progeny is the highest "tribute" that he can pay to his partner's beauty. Additionally, the authors find that teens and young adults in poverty are much better prepared (functionally) to be parents than their upper class peers because they have been around children for their entire lives, sometimes playing a large role in raising younger siblings or family members. Finally, there is the fact that a child can be seen as a source – and sometimes the sole source – of unconditional love in a poor woman's life. Economically, Edin and Kefalas note that some women simply stopped using contraceptives, largely because they had little reason to believe that economic circumstances for pregnancy would ever be quite "right." For these women, and their partners, there is little chance of higher education and a fulfilling career. With such a low opportunity cost, parenting can be seen as a respectable life goal.

Out of wedlock: causes and consequences of nonmarital fertility (2001) is a compilation by Wu and Wolfe that includes two useful chapters in particular. "Historical and Life Course Trajectories of Nonmarital Childbearing" by Wu, Bumpass, and Musick examines the interaction between the two trends examined here: increasing cohabitation and increasing nonmarital childbirth. They find that the trends have a great deal to do

with each other and that there is considerable complexity that is not as apparent when they are examined independently. One very important finding has to do with the fact that couples that have a child within a cohabiting union are much more likely to dissolve their union than couples that have a child within marriage.

"Intergenerational Effects of Nonmarital and Early Childbearing," a different chapter in the same book, was written by Haveman, Wolfe, and Pence (2001). The results of the study indicate that children of unmarried mothers have significantly lower life chances than their counterparts born to married mothers (measured in terms of high school graduation rates). In this measure, the mother's marital status is far more important than her age. The authors emphasize that this shows significant costs to society associated with nonmarital births. The feedback mechanisms described above are not limited to one generation, but affect the children of these unmarried mothers as well.

The educational gradient of nonmarital childbearing in Europe (2010) by Perelli-Harris et al. offers an international perspective in a study on nonmarital childbearing within cohabiting relationships in Europe. In nearly all countries studied, the authors determined that birth risk within cohabiting relationships followed a negative educational gradient despite the wide acceptance of childbearing within cohabiting relationships in Europe today. There are two explanations suggested by the authors for this negative educational gradient. The first is liberalized attitudes towards nonmarital childbearing and the second is globalization that has led to economic (and by extension) relationship uncertainty. This research is important because it examines assumptions about out-of-wedlock childbirth in a different part of the world, where marriage and cohabitation have different cultural meanings, and finds that nonmarital childbearing follows a similar pattern still.

Planning statuses of married versus unmarried mothers

The planning status of a pregnancy is often very much related to the resources that are available to a child once he or she is born. Mothers who intend to have their children are much more likely to have taken care and precaution in order to bring the child into the world with every possible resource. Conversely, if a pregnancy is unplanned, it is more likely that the parents have not made adequate preparations for a child to enter their lives (Baydar, 1995). Thus, it is often important to know whether a pregnancy was planned and how planning status differs with various indicators of socioeconomic status. We know that unintended fertility is common and differs by a mother's level of education (Table 4).

Musick et al. (2010) examine education differences in intended and unintended fertility with the National Longitudinal Survey of Youth. They find that the difference in fertility between women along the education gradient can be explained mostly by differences in unintended childbearing and is not based on opportunity costs of or desire for children. This indicates that it is not the lower wage cost or a simple desire to have more children that leads poor women to have larger families, but a higher rate of unintended fertility. There are several hypotheses as to why this may be the case, including a gap in access to contraception, confusion about the intention status of a pregnancy resulting from relationship instability, and less consistency in contraceptive use. It is unclear which of these explanations provides the basis for the findings in the study, but it is apparent from this study that planning status differs drastically across class lines.

There is additional literature that deals with the planning status of births as it relates to cohabiting unions. England and Edin (2007) in particular have researched the formation of "fragile families," and have found that children born within cohabiting unions are often not necessarily planned or unplanned, but somewhere within a larger spectrum of planning statuses. Low-income couples are less effective at regularly using contraception, but it is also true that unmarried couples are less likely to report their pregnancies as "unplanned." Clearly, there is a great deal of ambivalence surrounding the planning status of many of the pregnancies studied. The conclusion drawn is that it is better in research to consider the planning status of a pregnancy along a continuum rather than simply in binary categories. As with the research above, there are no definitive reasons offered as to why low-income women have more unintended pregnancies, but numerous associations with planning status become apparent through England and Edin's work.

Finer and Henshaw (2006) examine rates of unintended pregnancies among women of different demographic characteristics and find that these rates have increased among younger, poorer, less educated, and minority women. Additionally, the authors note that women in cohabiting relationships are particularly susceptible to unintended pregnancies. Most interestingly, the authors show that while the overall rates of unintended pregnancy did not increase between 1994 and 2001, the subgroups reporting unintended pregnancies changed a great deal. According to this research, these older mothers are not planning their pregnancies to a greater degree than their teenage counterparts, as women aged 25-34 reported more unintended pregnancies even as teenagers reported fewer.

Trend towards older unmarried mothers

Data show that unmarried mothers are somewhat older today than they were in the past (Table 1). All else equal, this trend should imply that more resources are available to the children of unmarried mothers at birth today than in the past, an opinion espoused in the media articles presented above. In many cases, the research presented here goes against the popular interpretation of what the rising age of unmarried mothers means in terms of public policy.

Much research on out-of-wedlock childbirth prior to 2000 focused on the social scourge of teen motherhood, as this was seen as the dominant form of this social problem. One article by Hoffman, Foster, and Furstenberg (1993) delves into the true consequences of teen childbearing for young mothers and their children. Their data discredit the argument that teen childbearing has no true cost (and is simply a reflection of the poor socioeconomic conditions in which these mothers find themselves) by comparing teen mothers with their sisters.

Guzzo and Hayford (2010) examine the link between two prevalent trends in the data on childbearing in the United States. More specifically, they test whether the planning status of births is still tied to maternal age even as (1) the average age of mothers has increased and (2) more births are to unmarried mothers. The authors use the 2002 National Survey of Family Growth and discover that age and planning status are strongly associated, especially for first and second births, but that union status (and rising cohabitation) plays a large role. The authors predict that if these trends continue, cohabitation may "become equivalent as a family form."

However, research does not universally support the idea that unmarried mothers in the future could become like married mothers in the past. Foster and Hoffman (1996) conduct a study in which they discover that though the age of unmarried mothers is rising, the number of these mothers who did not have children at younger ages is actually very small. In other words, it may be the case that the same mothers who are having children out of wedlock in their teens and in their twenties are simply having more children out of wedlock as they become older. If this is the case, the implication is that, though unmarried mothers are becoming older, they are delaying family formation and are not necessarily in more stable financial situations. These results are further reinforced by another article by Foster and Hoffman (1997), *"Nonmarital Births and Single Mothers: Cohort Trends in the Dynamics of Nonmarital Childbearing"*. Their results in this study show that though the proportion of nonmarital births in the United States has risen sharply in recent decades, the proportion of women who have ever had a nonmarital birth has risen much more moderately. This suggests, of course, the very same conclusion suggested above: the same women who have one nonmarital birth are having subsequent nonmarital births as well.

The rising age of unmarried mothers, according to this research, is not the harbinger of nonmarital stability that media interpretations discussed above assume it to be. This trend may not be an outgrowth of women's economic independence but the manifestation of a decline in marriage among groups having a first nonmarital birth. By examining detailed data that give us information on the contexts surrounding these nonmarital births, we can do a better job of determining which of these stories is supported by the information at hand.

Summary

We have a great deal of descriptive information in previous literature that allows us to learn (often qualitatively) what families "look like" based on class. However, few studies in this field have attempted to examine causality in an area of countless overlapping trends. The papers that have attempted causal research have yielded few definitive or generalizable conclusions, though several well known correlations have emerged. We know that these social problems trend by education, income levels, and class, but we cannot determine precisely why this is with any certainty.

The body of research on out-of-wedlock childbirth has shifted considerably from classic studies on teen motherhood to broader analyses of unmarried motherhood and cohabitation. My research uses new data to document more recent trends and determine interpretations for policy purposes.

Research Questions and Hypotheses

1) Comparing children born to married and unmarried mothers, have the socioeconomic characteristics (using measures of education) of their mothers diverged or narrowed over time?

2) Has the link between union status and planning status changed, and can this be accounted for by changes in mother's age or other characteristics?

As for the first research question, comparing children born to married and unmarried mothers, I predict that the socioeconomic characteristics of the mothers have remained constant or diverged over the time period studied. This prediction is at odds with the popular interpretation of data, which show that unmarried mothers are getting older. Because older mothers have traditionally been in more stable socioeconomic situations, as McLanahan's research shows, a popular interpretation has been created that portrays unmarried mothers as converging in measures of socioeconomic status with their married mother peers (McLanahan, 2004). The story of the professionally successful mother who happens to be unmarried is not supported by detailed data. Vital statistics are not nuanced enough to indicate how age at the birth of a child has changed over time for unmarried mothers relative to married mothers. Perhaps more importantly, the figures cited do not typically indicate trends in mother's age at first birth, which is a statistic that is more closely correlated with education and other indicators of SES. My hypothesis, for this reason, is that the socioeconomic characteristics are not converging. Births to unmarried mothers will still tend to be predicted by indicators of lower socioeconomic status, meaning that children born to unmarried mothers will still tend to be disadvantaged socioeconomically when compared to their peers born to married mothers.

Foster and Hoffman's studies, outlined above, provide data- driven support for my hypothesis (Foster and Hoffman, 1997). Additionally, this is consistent with McLanahan's work, which examines trends in both divorce and nonmarital fertility (McLanahan, 2004).

As for the second research question, comparing children born to married, single, and cohabiting mothers, I predict that union status is still a strong predictor of the planning status of the pregnancy, even if the ages of unmarried mothers are rising. I predict that control variables that account for socioeconomic status and parity will weaken this correlation. I do not believe that the rising age of mothers will weaken the link between union status and planning status. I predict that older unmarried mothers will have unplanned pregnancies at levels similar to younger unmarried mothers, and at higher levels than married mothers. I do not predict that this percentage has narrowed over time, which would suggest that children born to unmarried and married mothers come into a world with more similar resources. In other words, I expect that union status is a better predictor of the planning status of a pregnancy than is age of the mother. This hypothesis is supported by Musick, et al. (2009) and Finer and Henshaw's (2006) research, showing that planning status of pregnancies differs drastically along class lines. Additionally, Edin and Kefalas's work does much to shed light on why it is that mothers of lower socioeconomic statuses do not do more to avoid pregnancy, showing a clear correlation between lower socioeconomic statuses and higher unplanned pregnancies (Edin and Kefalas, 2007). I predict that planning status is similarly stratified by union status based on this research and what we know from McLanahan (2004) and Goldstein and Kenney (2001) about correlations between class lines and the union status of births.

Overall, while we know that births to unmarried mothers are occurring later in their life course, I predict that the contexts into which these children enter the world continue to be less stable and more complex than those of children born into marriage. In summary, I predict that substantial differences remain in the context into which marital versus nonmarital and planned versus unplanned births take place.

Dataset Description

Sample and Survey Procedures

The National Survey of Family Growth (NSFG) has been conducted seven times since 1973. This research will examine cycles 5, 6, and 7, conducted in 1995, 2002, and 2006-2008 respectively. In 1995, the survey was conducted based on a probability sample of 10,847 civilian, non-institutionalized women 15-44 years of age in the United States. The research was carried out by the Research Triangle Institute under contract with the National Center for Health Statistics and the sample is meant to be nationally representative. Trained female volunteers administered the interviews using laptop computers between January and October of 1995 (additional data were collected using a self-administered interview with headphones). The interviews lasted 105 minutes on average and collected data on pregnancies, contraceptive use, marriage and/or cohabitation, work history, and other demographic characteristics.

For cycles 6 and 7, the respondents were both men and women ages 15-44, although only the sample of women will be considered in my analysis. Both cycles are meant to be nationally representative but do not produce estimates for individual states. In 2002, the survey was based on an area probability sample of civilian, non-institutionalized people in the United States and was conducted by the Survey Research Center of the University of Michigan under contract with the National Center for Health Statistics. Over 200 female volunteers were trained to conduct the survey, which included 12,571 respondents (7,643 females and 4,928 males). The process for males averaged about 60 minutes in length, while female interviews averaged about 80 minutes in length. For the latest sample, the NSFG shifted to continuous interviewing, though I will refer to

it as the 2007 sample. It was based on a sample of the household population of men and women aged 15-44 living in the United States. The sample is meant to be nationally representative based on 33 Primary Sampling Units and interviews were conducted 48 weeks per year for four years (June 2006 to June 2010). The first data were released in May 2010, and include 13,495 interviews that took place between June 2006 and 2008 (in total: 7,356 females and 6,139 males).

In the NSFG, it is necessary to oversample certain minority groups, including blacks and Hispanics, in order to include a large enough sample for separate analysis. Thus, sample weights account for the oversampling and are used in all descriptive analyses.

Measures

My analysis will rely on only some of the many variables tracked in the three NSFG cycles. One critical variable is marital/union status. In the NSFG, the line of questioning that forms these measures proceeded as follows: All women were asked how many times they had been married. Then, characteristics of each husband were recorded. The respondent was also asked about the date of the marriage and whether the couple cohabited before marriage (for each marriage reported). If they did, the respondent was asked the date when the couple began living together and whether they lived together continuously until marriage (if they did not, they reported the dates of each spell apart). The respondent was asked how marriage ended, the date when the marriage ended, and whether there were any periods living apart during marriage (including reasons why). For her current cohabiting partner, the respondent was asked the date when she started living with her boyfriend and whether there were any periods of living apart. The same

characteristics as were asked about husbands were then asked regarding each cohabiting partner. For the purposes of this research, I have merged the birth file with this marriage file. As a result, it is possible to determine whether a birth occurred during a period of marriage, a period of cohabitation, or during a period in which the mother was single.

A second critical measure is the planning status of a pregnancy. This was measured in a series of questions in the pregnancy file in which mothers were asked first whether they were on birth control when they became pregnant. If not, they were then asked whether they had stopped using birth control because they wanted to become pregnant. If the mother did intend to become pregnant, she was asked whether the baby came too soon, at the right time, or later than she would have preferred. If the mother did not intend to become pregnant, she was then asked a series of questions about her intentions for pregnancy at any point in the future and the reasons why she did not use birth control. Following this series of questions, births were either categorized as Too Late, Timed Correctly, Too Soon/Mistimed, Unwanted, the mother was indifferent, or the mother was not sure. A pregnancy was characterized as unplanned in this analysis if it fell under "Unwanted" or "Too Soon/Mistimed."

One key independent variable that will be used in this analysis is education, which serves as an indicator of the mother's socioeconomic status. Ideally, I aim to reconstruct a mother's education level at the time of a birth. Unfortunately, the level of detail on education histories varies across cycles – while we have the level of mother's education for each birth, we do not always have the timing of degree completion. In the 1995 cycle, respondents were asked about levels of education in a very specific fashion (high school diploma, GED, associate's degree, bachelor's degree, master's degree, Ph.D., and other).

For the 2002 and 2007 cycles, the data are not as complete. I am able to determine the date that a respondent received a high school diploma and whether the respondent had a college degree at the time of the interview. With this information, I was able to create an education variable at the time of the birth with three categories (less than high school, high school diploma, college diploma). For those mothers with a college degree at the time of the interview, the created variable assumes that a mother has attained her college degree by the time she is 25 years old. While this is not ideal, it is the most complete construction that can be created with what is available and successfully standardizes the education data across cycles despite the discrepancies in information available from one cycle to the next.

The robustness of the variable was tested by performing the same analysis of the percentage of births to unmarried mothers by education level in each cycle, but assuming that mothers with college degrees have completed their degrees by age 23. The potential pitfall with constructing the education variable as I have is that some births to mothers under 25 could be coded as births to mothers with only a high school diploma when in reality they were to women who had already obtained college degrees. We would have evidence of this problem if the analysis using age 23 as the presumed date of college completion showed a much larger number of births coded as having occurred to college-educated mothers. However, this is not the case in any of the three cycles. In every case, the figures assuming completion by age 23 are within one percentage point of those assuming completion by age 25.

The unit of analysis is births in the five years prior to the interview. The reason for this is that, while I use births as a unit of analysis, I hope to determine trends over

time. Truncating the sample ensures that I am considering non-overlapping birth cohorts to women 15-44 years of age.

Additional measures in my analysis include parity, age, and race – all of which are control variables. Birth parity is collected during all three cycles of the NSFG and each birth is coded as either a first order birth, a second order birth, or a third-or-higher order birth. Mothers' age is broken down into five separate tiers: under 20, 20 to 24, 25 to 29, 30 to 34, and 35 or older. Finally, race is split into four categories including White (non-Hispanic), Hispanic, Black, and other.

Descriptive Statistics

The total number of births examined in this analysis is 9,375. This includes 3,915 births in the 1995 cycle, 2,741 births in the 2002 cycle, and 2,719 births in the 2007 cycle. All of these births occurred in the five years leading up to the sample cycle, as the sample was delimited for consistency as described above. All percentages described below are weighted so that the sample fits the population.

In Table 1, I show that less than thirty percent of respondents had education totaling less than high school, between forty six percent and fifty eight percent had only a high school diploma, and between fifteen percent and twenty six percent had a college degree. Overall, the sample became more educated from the first to the third cycle, especially in terms of percentage of respondents with a college diploma versus a high school diploma.

Examining mothers' ages, as noted in the introduction, mothers are older now than they were at the first cycle. Teenage mothers (under 20) accounted for fewer than twelve percent of births in the 1995 cycle, a figure that dropped below eleven percent for

the last two cycles. Mothers ages 20-24 and 25-29 account for a decreasing percentage of births today than in the 1995 cycle, falling from twenty six to twenty four percent and thirty to twenty six percent, respectively. Mothers aged 30-34 now account for twenty four percent of births compared to twenty two percent in the 1995 cycle and mothers aged 35 and over now account for nearly fifteen percent of births versus less than ten percent before. The mean age of mothers tied to births during the first cycle is 27.09 (23.73 for unmarried mothers), rising to 27.50 (24.15) for the 2002 cycle and to 27.79 (24.65) for the 2007 cycle.

Parity is a control variable in some analyses. Table 1 shows that in both 1995 and in 2002, just over forty percent of examined births were first order births, a figure that dropped slightly to approximately thirty eight percent in 2007. Approximately one third of births in all three cycles were second order births. Third order births (or higher) accounted for about one quarter of births in the first two cycles and about twenty eight percent in the 2007 cycle. The mean parity of births examined during the first cycle is 1.87 (1.82 for unmarried births), falling to 1.81 (1.80) during the 2002 cycle before rising again to 1.86 (1.80) during the 2007 cycle.

I control for four categories of race/ethnicity in all cycles: Hispanic, non-Hispanic white, black, and other. Births occurring to mothers in these groups changed significantly in some areas. Hispanic mothers account for over twenty two percent of births today versus fifteen percent in the 1995 cycle while white mothers account for only about fifty six percent today versus sixty six percent before. There was not as much change among black mothers and mothers of the "other" racial category, who accounted for fifteen and six percent of births respectively today versus five and fourteen percent in the 1995 cycle.

Nearly seventy percent births in the first cycle were planned. In 2002, this figure had dropped to just over sixty five percent and was slightly lower still in 2007. Overall, births are more likely now than in 1995 to be unplanned, with a six percent increase on a baseline of thirty percent. However, differences in sampling methods accounting for the planning statuses of birth may be partially responsible for this result.

Table 1 (Percentages are weighted; Births in past five years)

		1995		***2002***		***2007***		***Total***	
Variable	**Category**	**Count**	**Perc.**	**Count**	**Perc.**	**Count**	**Perc.**	**Count**	**Perc.**
Cycle	1995	3,915	41.76						
	2002			2,741	29.24				
	2007					2,719	29.00		
	Total							9,375	100.0
Mother's Marital Status	Married	2,574	71.74	1,601	64.95	1,406	63.21	5,581	66.52
	Unmarried	1,341	28.26	1,140	35.05	1,313	36.79	3,794	33.48
	Total	3,915	100.00	2,741	100.00	2,719	100.00	9,375	100.00
Mother's Union Status	Married	2,567	71.60	1,594	64.73	1,406	63.21	5,567	66.40
	Single	846	17.29	692	21.04	642	15.05	2,180	17.77
	Cohabiting	502	11.11	455	14.23	671	21.74	1,628	15.83
	Total	3,915	100.00	2,741	100.00	2,719	100.00	9,375	100.00
Planning Status	Planned	2,616	69.35	1,704	65.06	1,578	63.82	5,898	66.00
	Unplanned	1,296	30.65	1,039	34.94	1,142	36.18	3,477	34.00
	Total	3,912	100.00	2,743	100.00	2,720	100.00	9,375	100.00
Mother's Education	<High School	1,129	26.20	855	27.90	882	28.03	2,866	30.57
	High School	2,219	58.22	1,388	49.93	1,340	46.24	4,947	52.77
	College+	567	15.58	498	22.17	497	25.73	1,562	16.66
	Total	3,915	100.00	2,741	100.00	2,719	100.00	9,375	100.00
Age Range	Under 20	474	11.94	338	10.63	322	10.88	1,134	11.25
	20-24	1,023	26.39	800	26.43	787	24.35	2,610	25.81
	25-29	1,173	29.93	756	27.22	744	26.31	2,673	28.09
	30-34	858	21.95	562	23.27	560	24.10	1,980	22.96
	35 and over	382	9.79	286	12.45	310	14.36	978	11.89
	Total	3,910	100.00	2,742	100.00	2,723	100.00	9,375	100.00
	Mean Age		27.09		27.50		27.79		27.47
	Mean (Unmarried)		23.73		24.15		24.65		24.22
Birth Parity	First	1,508	40.95	1,102	40.25	1,045	38.02	3,655	39.70
	Second	1,307	33.59	923	34.10	870	33.04	3,100	33.57
	Third +	1,100	25.46	716	25.65	804	28.94	2,620	26.73
	Total	3,915	100.00	2,741	100.00	2,719	100.00	9,375	100.00
	Mean parity		1.87		1.81		1.86		1.85
	Mean (Unmarried)		1.82		1.80		1.80		1.81

Mother's Race	Hispanic	779	15.46	725	19.85	735	22.17	2,239	19.25
	White	2,055	65.80	1,326	60.19	1,226	56.46	4,607	60.69
	Black	957	14.25	552	13.95	610	15.43	2,119	14.56
	Other	124	4.49	138	6.01	148	5.94	410	5.50
	Total	3,915	100.00	2,741	100.00	2,719	100.00	9,375	100.00

Methods

Logit Models

Logit models will be used in this study to quantify changes in demographic characteristics over time. This is a useful quantitative method when we use binary dependent variables (such as married versus unmarried) because linear probability models, at very high or low probabilities, can show results above a one hundred percent probability or below a zero percent probability of an event occurring. In more detail, because the dependent variables are binary, the mean of the distribution is equal to the proportion of births to married mothers in the distribution. The coefficients that result from the regression cannot be interpreted in as straightforward a fashion as in OLS because the relationship between the dependent variable and the coefficient is not linear, but this model allows us to make predictions that are easy to estimate and have clear interpretations. Exponentiated coefficients can be interpreted as odds ratios, which are an intuitive measure of differences between groups. For instance, referring to the models below, the exponentiated coefficient on the binary variable "High School" represents the odds of a nonmarital birth for a woman with a high school level education relative to the odds for the reference group (a woman with less than a high school education).

Research Question #1

I will determine whether the socioeconomic characteristics (as measured by education) of married and unmarried mothers have diverged or narrowed over time. My

research will use logit models to examine the association between education and (1) the log-odds of a birth being to an unmarried mother versus a married mother and (2) the log-odds of a birth being to a single mother versus a cohabiting mother. Three different logit models (one for each sample cycle) will be used for each of these measures in order to examine change over time. Results will include one coefficient representing the bivariate association between education and the binary dependent variable with only controls for race and one coefficient including controls for race, age (broken down into categories as described above), and parity (first birth, second birth, and third or higher). I will compare the magnitude of the education odds ratios across cycles.

Research Question #2

I will determine whether the characteristics of unplanned births have changed over time and in particular, whether the link between union status and planning status has changed due to changes in mothers' age or other characteristics. My research will use a logit model to examine the association between planning status, time, mother's union status, and age. Three different models, one for each sample cycle, will be conducted in order to examine change over time. Results will include one coefficient representing education on the binary dependent variable minus all controls (except for race) and one coefficient including controls for race, education, age (broken down into categories as described above), and parity (first birth, second birth, and third or higher).

Empirical Models

The following logit models will be used in this analysis. As noted above, there will be a logit for each cycle to examine changes over time. More specific results for the regressions of these logit models can be found in the tables below and are discussed in

the results section that follows. Note that in the first three models, less than high school education is omitted (we compare the high school and college education levels to this baseline). In the fourth model, a marital birth is omitted (we compare the impact of being single or cohabiting to this baseline).

Union Status

Logit Unmarried = High School + College + Hispanic + Black + Other + Second Order Birth + Third-or-Higher Order Birth + Age 20-24 + Age 25-29 + Age 30-34 + Age Over 35

Logit Single = High School + College + Hispanic + Black + Other + Second Order Birth + Third-or-Higher Order Birth + Age 20-24 + Age 25-29 + Age 30-34 + Age Over 35, conditional on unmarried births

Planning Status

Logit Unplanned = Single + Cohabiting + Hispanic + Black + Other + High School + College + Second Order Birth + Third-or-Higher Order Birth + Age 20-24 + Age 25-29 + Age 30-34 + Age Over 35

Results

Univariate Results

Referring to Table 2, in the first cycle, over seventy percent of births were to married mothers, a figure that dropped sharply to just more than sixty five percent in the second cycle and just under sixty three percent in the third cycle. This is an indication that there are still rising levels of unmarried births in the United States.

Another interesting result can be found in terms of the family contexts of out-of-wedlock births. In the 1995 cycle, among births to unmarried mothers, nearly forty percent were to mothers in cohabiting relationships, a figure that rose over forty percent by the second cycle. By the 2007 cycle, just less than sixty percent of unmarried births were to mothers in cohabiting relationships. Twenty percent more births to unmarried mothers in the 2007 cycle compared to those in the 1995 cycle were within the context of cohabiting relationships, indicating a significant shift in out-of-wedlock births from mothers who are single to mothers who are cohabiting at the time of the birth. This is a telling result in terms of the contexts of unmarried births and is consistent with other research on the changing nature of nonmarital births (Manlove, 2010).

Table 2 (Percentages are weighted; Births in past five years)

		1995		***2002***		***2007***	
Variable	**Category**	**Count**	**Perc.**	**Count**	**Perc.**	**Count**	**Perc.**
Marital Status	Married	2,574	71.74	1,601	64.95	1,406	63.21
	Unmarried	1,341	28.26	1,140	35.05	1,313	36.79
	Total	3,915	100.00	2,741	100.00	2,719	100.00
Union Status	Married	2,567	71.60	1,594	64.73	1,406	63.21
	Single	846	17.29	692	21.04	642	15.05
	Cohabiting	502	11.11	455	14.23	671	21.74
	Cohabiting/Unmarried		0.39		0.41		0.59
	Total	3,915	100.00	2,741	100.00	2,719	100.00

Bivariate Results

I have created two tables to display bivariate results. The first (Table 3) examines the percentage of married, single, and cohabiting births to mothers by education level, with each cycle considered individually. Analysis of the union status of a birth by controls for mothers' age and birth parity are also included in Table 3. The second table (Table 3) shows percentages of unplanned pregnancies by union status for all births in the sample by cycle. The table also includes percentages of unplanned pregnancies by education, age, and parity.

Single and Cohabiting Births by Education Level

Bivariate results showing the percentage of births by union status to mothers with various levels of education are shown in the top section column of Table 3. In this analysis, some interesting patterns emerge. First, ordinal ranking by percentage of births to unmarried mothers does not change from the first cycle to the third. In other words, mothers with less than a high school education consistently have the highest proportion of births out-of-wedlock, followed by mothers with a high school diploma and mothers with at least a college education. In terms of changes within these categories, though, there are several key findings. First, in terms of births to mothers with less than a high school education, a trend reverses from the first to second and then second to third cycle. In the 1995 cycle, just over half of births are out-of-wedlock. This proportion rises sharply to over sixty percent in the 2002 cycle before falling again – albeit not to the original level – for the 2007 cycle. Births to mothers with a college education show a sharp uptick in out-of-wedlock births from the first to the second cycle, rising from under

four percent to over six percent. In the final cycle, less than six percent of births to mothers with a college degree are out-of wedlock.

Table 3 *% Births by Union Status*

	1995 Cycle			2002 Cycle			2007 Cycle		
	Married	*Single*	*Cohab.*	*Married*	*Single*	*Cohab.*	*Married*	*Single*	*Cohab.*
Education									
<High School	46.61	32.25	21.14	38.09	34.52	27.40	43.20	25.16	31.64
High School +	75.23	15.05	9.72	66.47	20.61	12.92	57.45	16.42	26.13
College+	96.59	2.56	0.84	93.10	5.76	1.14	93.89	2.15	3.95
Coll/LTHS	2.07	0.08	0.04	2.44	0.17	0.04	2.17	0.09	0.12
HS/LTHS	1.61	0.47	0.46	1.75	0.60	0.47	1.33	0.65	0.83
Coll/HS	1.28	0.17	0.09	1.40	0.28	0.09	1.63	0.13	0.15
Age									
Less than 20	30.67	50.30	19.03	21.04	50.94	28.02	25.73	38.93	35.34
20-24	61.68	21.84	16.48	47.87	29.72	22.41	45.01	19.91	35.08
25-29	80.77	10.66	8.57	72.40	15.55	12.05	67.77	13.33	18.90
30-34	87.91	6.05	6.04	84.45	10.52	5.03	80.98	6.80	12.22
35 and older	84.24	9.65	6.12	84.62	8.33	7.05	84.38	5.63	10.00
Mean age	28.41	23.20	24.55	29.33	24.12	24.18	29.63	24.05	25.06
Parity									
First order	70.30	21.49	8.21	60.91	26.60	12.49	55.65	23.96	20.38
Second order	80.52	11.48	8.00	71.81	19.40	8.79	68.94	13.55	17.50
Third or higher	75.33	13.56	11.12	63.53	22.57	13.90	68.70	14.23	17.07

n = 9,375

Note: All figures are weighted and consider births in the five years leading up to the survey

The most prominent trend to examine in these results is the significant and steady increase of out-of-wedlock births to mothers with at least a high school diploma but without a college degree. In the 1995 cycle, less than one quarter of births to women in this category were to unmarried mothers. By the 2002 cycle, this figure had risen to approximately one third and rose again to forty two percent for the 2007 cycle. This

finding is particularly interesting in light of the fact that mothers with a high school education but no college degree represent over half of the individuals in the sample and in the population at large.

It is also informative to examine the ratio of unmarried births to the baseline of mothers with less than a high school education. It is important to note here that only 130 unmarried births to college educated mothers are included in this sample, which is not a large number of observations to examine. Thus, unmarried births to mothers with less than a high school education, for which we have 2,863 observations, is the statistic used as the baseline measure. The ratio of unmarried births to women with college degrees versus those to women without high school degrees moves slightly from seven-one hundredths in the 1995 cycle to one tenth in the 2002 cycle and remains static in the 2007 cycle. This means that an out-of-wedlock birth is ten times more likely to have occurred to a mother without a high school diploma than it is to have occurred to a mother with at least a college degree, a staggering statistic highlighting a persistent gap by socioeconomic status. Perhaps more interestingly, the ratio of unmarried births to women with a college degree versus those to women with a high school diploma (but no college degree) is nearly the same by the final cycle at .13. This statistic highlights the increasing similarities between births to women without high school degrees and those to women with only high school degrees. Finally, the ratio of unmarried births to women with high school diplomas but no college degrees to those without high school diplomas rises steadily from .45 to .54 and eventually to .74. This means that by the 2007 cycle, an unmarried birth was seventy-five percent as likely to occur to a woman with a high school degree and no college degree as to a woman without a high school degree.

The results in terms of the nature of unmarried births are consistent with those in Table 2. In the 1995 cycle, we see that for mothers with less than a high school education, just over twenty percent of births are to cohabiting mothers, a figure that rises to twenty seven and then thirty two percent in the second and third cycles examined, respectively. Among mothers with a high school diploma but without a college degree, the percentage of births to cohabiting mothers rises as well from just under ten percent to thirteen percent before doubling to twenty six percent in the third cycle examined. Among mothers with college degrees, the percentage of births to cohabiting women, at less than one percent during the 1995 cycle, increased to just over one percent before quadrupling to nearly four percent in the 2007 cycle. However, these figures should be viewed with caution because of the small sample size we must examine for unmarried, college-educated mothers. Still, there were significant increases in cohabiting births for mothers at each education level.

The most critical finding regarding cohabiting births has to do with the proportion of the out-of-wedlock births that occur to cohabiting mothers. By the 2007 cycle, for mothers with all three levels of education, there were higher percentages of cohabiting births than single births. In fact, the increasing proportion of cohabiting births outpaced a parallel increase in out-of-wedlock births, and so the proportion of unmarried births to cohabiting mothers increased accordingly from the first to the third cycle. Among mothers with less than a high school education, the proportion of unmarried births to cohabiting mothers increased from under forty percent in the 1995 cycle to forty five percent in the 2002 cycle and to fifty six percent in the 2007 cycle. More significantly, when we examine unmarried births to mothers with only a high school level education,

we see that the proportion of these births that were to cohabiting mothers increased from just over forty to just over sixty percent from the first to the third cycle. The flip side of these statistics, of course, is that fewer unmarried births today are to single mothers than was the case during the 1995 cycle. The proportion of unmarried births to cohabiting mothers increased in all categories, and unmarried births are now more likely to be to a cohabiting mother versus a single mother as the mother's level of education rises. This may tell part of the story of rising rates of unmarried births in general: many of them are in the context of cohabiting relationships.

Considering changes in sample procedures from the first to the third cycle, further analysis is required to assess whether these observed changes are an artifact of how data on cohabitation is collected. As other researchers have discovered, the concept of cohabitation is much less clearly defined than marriage, even when solid sampling procedures are used (Sweeney, 2002; Smock, 2005).

Mothers' ages and birth parity are two other variables included in this analysis. Results by mothers' age should be viewed with caution, as the variable categories were created arbitrarily, but we can say that the observed shift from marital to nonmarital births can be seen among mothers between the ages of twenty and thirty-four (the middle three categories). A portion of the shift among nonmarital births from single to cohabiting also is displayed strongly among mothers between the ages of twenty-five and thirty-four.

In terms of parity, births in all three categories are less likely to be marital during the third cycle when compared to the first, with the largest shift (seventy percent marital to fifty-five percent marital) occurring with first-order births. The most notable shift in the proportion of single to cohabiting births occurs among higher order births.

Unplanned Births by Union Status

Table 4 shows bivariate results for the proportion of births that are unplanned broken down by union status across cycles. Additionally, the same analysis of the percentage of unplanned pregnancies is included for other key variables, most notably mothers' age. In terms of union status, there is no ordinal change in percentage of unplanned pregnancies among the three subgroups: married, single, and cohabiting. Single mothers consistently have the highest proportion of unplanned pregnancies and married mothers have the lowest. The percentage of unplanned births to married mothers does not change significantly, rising from just above twenty one percent to just below twenty three percent from the first to second cycle and staying almost completely static from the second to the third cycle. Among single mothers, six in ten pregnancies are unplanned for both of the first two cycles, but this percentage jumps to over sixty eight percent for the third cycle. Births to cohabiting mothers show a steady increase in terms of the proportion of unplanned pregnancies, rising from forty five percent to fifty-two and finally fifty-three percent from the first to the second to the third cycle.

It is critical to note that, as above, the most telling changes have largely occurred among mothers in at risk groups (single and cohabiting). Married mothers, in terms of the planning status of pregnancies, are very similar today to their counterparts in the 1995 cycle. Among single and cohabiting mothers, though, there are significantly more unplanned pregnancies than there were during the first cycle. We can see this by examining ratios of unplanned pregnancies by union status. For the 1995 cycle, an unplanned birth was about twice as likely (2.12 times) to have occurred to a cohabiting mother than to a married mother. By the 2007 cycle, this figure had risen to 2.35. As

noted with respect to cohabitation, there may be survey affects in assessing planning status across time. Within survey comparisons across union status should be unaffected as in other research of this nature (Guzzo and Hayford, 2010). Thus, the small changes in the ratios reported here in particular may be the result of survey artifacts.

Table 4 *% Unplanned Pregnancies*

	1995 Cycle	2002 Cycle	2007 Cycle
Union Status			
Married	21.32	22.98	22.70
Single	60.14	60.37	68.10
Cohabiting	45.23	51.71	53.30
Ratio: Cohabit/Married	2.12	2.25	2.35
Ratio: Single/Married	2.82	2.63	3.00
Education			
<High School	46.25	51.61	51.22
High School +	27.84	35.13	39.51
College+	15.00	13.51	13.82
Age			
Less than 20	64.39	77.81	76.22
20-24	38.55	44.16	52.09
25-29	21.97	26.99	27.33
30-34	17.88	22.01	21.65
35 and older	23.69	19.85	19.45
Mean age (planned)	28.13	28.88	29.38
Mean age (unplanned)	24.76	24.94	25.00
Parity			
First order	30.84	36.35	35.43
Second order	23.89	28.23	34.07
Third or higher	39.27	41.63	39.59

n = 9,375

Note: All figures are weighted and consider births in the five years leading up to the survey

There is not a great deal of change in terms of ratios of planning status between cohabiting versus married mothers and single versus married mothers. Similarly, an analysis of planning status by education level yields no surprising results.

The most relevant secondary results to my hypothesis are those dealing with percentage of unplanned pregnancies by mothers' age. For mothers under the age of thirty-five, the percentage of unplanned pregnancies increases from the first to the third cycle. It is only this oldest group of mothers for whom the percentage of unplanned pregnancies decreases from the first to the third cycle. Across cycles, births to older mothers are generally more likely to be planned. Both of these results are interesting and suggest that mothers' age is still an important predictor of the planning status of a birth, perhaps more during the third cycle than during the first two. Multivariate results below tell a more complete story regarding the nature of this relationship in terms of the association between union status and planning status.

Summary

In summary, the bivariate models display a continuation of trends discussed in the literature review. Unmarried and unplanned births occur to mothers who fit descriptively with the well known correlates of lower socioeconomic status as measured by union status and education level. In particular, I find that births to mothers in the middle socioeconomic category (those with high school but not college degrees) are becoming more similar to births to mothers in the lowest socioeconomic category in terms of marital status. Additionally, an increasing proportion of unmarried births are to cohabiting versus single mothers. Finally, in terms of the planning status of pregnancies, both union status and age remain strong predictors, with the most significant changes

occurring among the most at-risk groups. With this clear picture of trends in single and unplanned motherhood from the 1995 NSFG cycle to the 2007 cycle, I will now turn to a multivariate analysis of these data, which should provide a clearer picture of some specific pathways pertaining to these bivariate results.

Multivariate Models

There are three multivariate models included in this analysis, two of them dealing with births to unmarried mothers by education level and one of them dealing with planned and unplanned births by union status. Results shown are odds ratios that were created by exponentiating the logit coefficients created in the models. Statistical significance is indicated in the table. In each case, two models were run. The first models include only the primary independent variables and race controls while the second models include other controls as well.

Marital versus Nonmarital Births

Table 5 shows multivariable results for the logistic regression predicting unmarried births. The omitted category among the primary independent variable (education) is births to mothers with less than a high school education. In all three cycles, the odds ratios of an unmarried birth associated with a mother having a high school or college diploma diminish somewhat when controls for parity and age are included, but are robust even with the full complement of controls. This indicates that nonmarital births tend to be more often to younger, first-time mothers. Births to mothers with high school educations but no college degrees in the 1995 cycle were four-tenths as likely to be unmarried versus births to mothers without high school educations when controls are included. This figure rose to forty eight and then fifty eight percent in the two subsequent

cycles, respectively. These results fit with bivariate figures that show increasing similarities in percentages of unmarried births to mothers with high school educations versus those with less than high school educations.

Table 5 ***Predicting nonmarital vs. marital births***

Married=0	1995 Cycle				2002 Cycle				2007 Cycle			
	Model 1		*Model 2*		*Model 1*		*Model 2*		*Model 1*		*Model 2*	
Mother's Education												
High School Graduate	0.27	***	0.40	***	0.34	***	0.48	***	0.46	***	0.58	***
College Graduate	0.04	***	0.10	***	0.06	***	0.13	***	0.05	***	0.09	***
Mother's Race												
Hispanic	1.36	**	1.46	***	1.46	***	1.53	***	1.34	**	1.55	***
Black	9.65	***	10.26	***	5.51	***	5.41	***	4.40	***	4.65	***
Other	1.13		1.10		1.24		1.19		0.83		0.91	
Parity												
Second Order Birth			0.74	**			0.74	**			0.80	*
Third Order +			0.93				1.02				0.83	
Mother's Age												
20-24			0.36	***			0.38	***			0.32	***
25-29			0.17	***			0.21	***			0.19	***
30-34			0.11	***			0.13	***			0.13	***
35 +			0.16	***			0.15	***			0.13	***

*p<.10, **p<.01, ***p<.001
n = 9,375
Note: All figures are weighted and consider births in the five years leading up to the survey

In terms of other variables included in the analysis, a mother's increasing age is strongly negatively correlated with unmarried births in every cycle. When compared with mothers under the age of twenty, mothers in their early twenties are between thirty and forty percent as likely to have an out-of-wedlock birth and mothers over thirty are less than twenty percent as likely to do so. Additionally, a mother's being black is strongly

correlated with a birth being unmarried, though this association diminishes by half over time, falling from an odds ratio of over ten (meaning that black mothers are more than ten times as likely to birth a child out-of-wedlock than white mothers, the baseline group) to 5.41 and finally to 4.65 in the second model.

Cohabiting versus Single Births

In Table 6, I analyze characteristics of unmarried births broken down into cohabiting and single births. Marital births are excluded from this binary analysis. As in the analysis above, the omitted category among the primary independent variable (education) is births to mothers with less than a high school education. High school graduates are not significantly more or less likely than their counterparts without high school educations to have a cohabiting birth (versus a single birth) when marital births are excluded from the analysis. However, there is a shift towards increased prevalence of cohabiting versus single births from the second to the third cycle. The odds ratios describing unmarried births to college graduates fluctuate wildly. In the first two analyses, a birth to a college educated woman is more than twice as likely to be a single versus a cohabiting birth when compared to those to mothers without a high school education, but in the third cycle, a birth is thirty-seven percent less likely. However, this is likely an artifact of a very small sample with these particular characteristics.

Examining the control variables, there are significantly large odds ratios associated with a mother being black (versus white) in terms of the propensity for an unmarried birth to be to a single versus cohabiting mother. In the first cycle, an unmarried birth to a black mother is nearly three times as likely in the controlled analysis to be to a single mother, a figure that drops to 1.63 times in the second cycle before rising

again to over 2.6 in the third cycle. Out-of-wedlock births to older mothers (compared to those to mothers under twenty) are consistently more likely to be cohabiting.

Table 6 ***Predicting single vs. cohabiting births***

Cohabiting=0	1995 Cycle				2002 Cycle				2007 Cycle			
	Model 1		*Model 2*		*Model 1*		*Model 2*		*Model 1*		*Model 2*	
Mother's Education												
High School Graduate	1.00		1.12		1.29	*	1.36	*	0.83		0.95	
College Graduate	1.89		2.16		2.61	**	2.76	**	0.52	*	0.63	
Mother's Race												
Hispanic	0.81		0.91		0.70	*	0.71	*	0.92		0.88	
Black	2.36	***	2.78	***	1.62	**	1.63	**	2.67	***	2.65	***
Other	1.66		1.83		1.41		1.36		0.76		0.76	
Parity												
Second Order Birth			0.60	**			1.08				1.07	
Third Order Birth +			0.54	***			1.00				1.37	*
Mother's Age												
20-24			0.54	***			0.78				0.55	***
25-29			0.62	*			0.76				0.56	**
30-34			0.53	*			0.90				0.64	*
35 +			0.76				0.79				0.80	

*p<.10, **p<.01, ***p<.001
n = 7,195
Note: All figures are weighted and consider births in the five years leading up to the survey

Planned versus Unplanned Births

In Table 7, I conduct a multivariate examination of the association between union status and planning status. The baseline group for the main independent variable is births to married mothers. As is the case above, two models were run and the impacts of single or cohabiting union status were diminished when controls were included in the model, as these controls partially account for the observed correlation between union status and

planning status. Comparing single to married mothers in terms of planning status, the results show that the odds ratio of an unplanned birth to a single versus a married mother rises from over three times to over three and one-half times from the first to the third cycle (though there is a dip to under two and one-half times in the second cycle). The odds of an unplanned birth to a cohabiting mother are higher than those to a married mother, and are higher still for single mothers, rising from 1.83 times to 2.10 times from the first to the third cycle, with an uptick to 2.14 times during the second cycle.

Table 7 ***Predicting unplanned vs. planned births***

Planned=0	1995 Cycle		2002 Cycle		2007 Cycle	
	Model 1	*Model 2*	*Model 1*	*Model 2*	*Model 1*	*Model 2*
Union Status						
Single	4.80 ***	3.12 ***	3.70 ***	2.36 ***	5.99 ***	3.64 ***
Cohabiting	2.76 ***	1.83 ***	3.41 ***	2.14 ***	3.28 ***	2.10 ***
Mother's Race						
Hispanic	1.04	0.84 *	1.31 **	1.08	1.17	0.94
Black	1.28 **	1.18	1.56 ***	1.41 **	1.20	1.08
Other	1.18	1.08	0.90	0.84	1.14	1.19
Mother's Education						
High School Graduate		0.96		1.13		0.89
College Graduate		0.80		0.76		0.60 **
Parity						
Second Order Birth		1.22		1.16		1.36 *
Third Order Birth +		2.76 ***		2.23 ***		2.66 ***
Mother's Age						
20-24		0.39 ***		0.27 ***		0.34 ***
25-29		0.19 ***		0.14 ***		0.13 ***
30-34		0.15 ***		0.12 ***		0.12 ***
35 +		0.18 ***		0.11 ***		0.09 ***

*p<.10, **p<.01, ***p<.001
n = 9,375
Note: All figures are weighted and consider births in the five years leading up to the survey

What is clear as I examine planning status by union status is that the patterns are the same across cycles: without controls, it is more likely that births to cohabiting mothers are unplanned versus births to married mothers and more likely still that births to single mothers are unplanned compared to births to cohabiting and especially married mothers. Even when I use control variables in the analysis, only the magnitude of the relationship between union status and planning status changes – the ordinal patterns remain the same. However, it is certainly true that some of the differences in planning status by union status are explained by basic demographics such as education level and age.

Among the control variables included in the model, age once again has an impact on planning status, with births to older mothers much less likely to be unplanned than births to younger mothers. These odds ratios generally decrease steadily as age rises. Interestingly, while the inclusion of these variables did not create much change in the models above, parity plays a large role in this analysis, as third order or higher births are between two and three times more likely to be unplanned as first order births in all three cycles.

Perhaps the most surprising finding is that the odds ratios of education level in the analysis of planning status are very close to one in all three cycles. This means that having a high school or college degree is not strongly associated with the planning status of a birth, a surprising finding considering the principality of socioeconomic status in literature on the planning status of a pregnancy (Musick, 2010; Finer and Henshaw, 2006). The notable exception to this finding is births to college educated mothers during the 2007 cycle, which are forty percent less likely to be unplanned than births to mothers

without a high school education. Births to mothers with college degrees are much less likely today to be unplanned, even when union status is accounted for.

Summary

The multivariate models show results that largely support those described in the bivariate analysis. The first two models deal with the first research question on the impact of socioeconomic status (as measured by education levels) on the odds of a birth being to an unmarried mother. We see that, as displayed in the bivariate analyses, mothers in the middle socioeconomic category are becoming more similar to mothers in the lowest socioeconomic category in terms of percentages of unmarried births. Additionally, analyses excluding married births provide interesting results in terms of the context of out-of-wedlock births. The third model examines the impact of a mother's union status on the birth's planning status. As was the case with the bivariate models, not a great deal of change was observed for this model from the first to the third cycle, though interesting findings emerge in terms of mothers' levels of education.

Discussion

The findings of this study suggest several important conclusions. I will first refer to my hypotheses in order to determine whether the results support my predictions before engaging in a broader discussion of some critical conclusions brought forth in this research.

In my first hypothesis, I predicted that, comparing births to married and unmarried mothers, the socioeconomic characteristics of the mothers have remained constant or diverged over the time period studied. Results show that this was indeed the case, especially when comparing mothers with high school educations to those with college educations. There was little change in either the bivariate or multivariate models for mothers with college degrees. Clearly, births to the most educated are still overwhelmingly within marital relationships much as they were during the first cycle examined. Conversely, a significant trend emerged displaying notable change among mothers with at least high school diplomas but without four-year college degrees, as their proportion of unmarried births steadily increased. By the 2007 cycle, it was over half as likely that a birth to a mother from this middle category was an unmarried birth versus a birth to a mother from the lowest education level. In this sense, we can say that the contexts of births to mothers in this middle category are today more similar to the "have-nots" than the "haves."

Additionally, this research suggests conclusions that offer insight into the nature of cohabitation as a family form. Examining bivariate models, we can say with certainty that births to cohabiting mothers are becoming more prevalent as a proportion of unmarried births overall across every education level. Multivariate analyses of cohabiting

versus single births do not yield definitive conclusions. Unmarried births to more educated women are not much more or less likely to be to single mothers when compared to unmarried births to women without high school diplomas. Nevertheless, it is clear that a mother being black (versus white) is associated with significantly higher odds of an unmarried birth being to a single versus a cohabiting mother.

In my second hypothesis, I predicted that, comparing unplanned and planned births, union status is still a strong predictor of the planning status of the pregnancy, even if the ages of unmarried mothers are rising. I also predicted that control variables that account for socioeconomic status and parity will weaken this correlation. In terms of the planning gap displayed in the bivariate results, there was remarkably little change overall across cycles. Today, as in the 1995 cycle, births to married mothers are more likely to be planned than births to cohabiting mothers, which are in turn more likely to be planned than births to single mothers. Though there was a slight jump in the percentage of unplanned pregnancies from the first to the second cycle among cohabiting mothers, there was almost no change to speak of among both married and single mothers in any of the cycles. Multivariate results show slightly higher odds of unplanned births for both single and cohabiting mothers compared to married mothers over the course of the study, but not on a significant level. Planning status continues to differ by union status despite increases in age. The odds ratios of unplanned births at each age interval either remained the same or rose slightly over time, indicating that age is still an important predictor of planning status. Additionally, when age and other controls were included in the analysis, the odds ratios associated with union status were diminished. Nevertheless, age was not

shown to affect the gradient in planning status by union status, which was consistent across time.

Interestingly, the odds ratios associated with mothers' education level did not suggest education as an important predictor of planning status. It seems that union status and age remain the most critical predictors of the planning status of a birth, regardless of socioeconomic level.

Beyond these hypotheses, we can draw some interesting conclusions regarding the state of "moderately educated" American mothers. Here, I refer to a recent article by Cherlin in which this very segment of the American population is discussed in great detail (he even uses the same variable, education, and category, high school but no college, as I do to define them). The results here fit with Cherlin's interpretations, as he found that "more attention should be paid to the middle" of the United States class system (Cherlin, 2009). Cherlin discusses structural issues facing middle class American workers, positing that these changes have forced increased rates of cohabitation and alternative family structures on these increasingly poor, formerly "blue collar" individuals (Cherlin, 2009). These results add to Cherlin's findings a key finding: moderately educated Americans have become much more like less-educated Americans than well-educated Americans in terms of unmarried childbearing. My findings confirm Cherlin's suspicion that, since 2002, union formation among the moderately educated has "approached the lesser place of marriage among the least educated" (Cherlin, 2009).

Overall, this research paints a vivid, descriptive picture of the changing nature of unmarried and unplanned births between 1995 and 2007. More research is needed to consider causal reasons behind these trends. Nevertheless, interesting patterns emerge,

particularly in examining out-of-wedlock childbirth among moderately educated Americans. Americans are more divided in family structure along class lines now than even in the very recent past.

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